SEQUENCE LISTING

<110> MIYATA, TOSHIO
KUROKAWA, KIYOSHI

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ctg cag gag gac gca gac gga ttt ggt gtg gat gac tac agc tca gag   100
Leu Gln Glu Asp Ala Asp Gly Phe Gly Val Asp Asp Tyr Ser Ser Glu
                 15                  20                  25

tct gat gtg att att ata cct tca gcc ctg gac ttt gtc tca caa gat   148
Ser Asp Val Ile Ile Ile Pro Ser Ala Leu Asp Phe Val Ser Gln Asp
             30                  35                  40

gaa atg ttg acg ccc ctg ggg aga ttg gac aag tat gct gca agt gag   196
Glu Met Leu Thr Pro Leu Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu
         45                  50                  55

aac ata ttt aac aga caa atg gtg gcc cgg agt ttg ctc gat acc ttg   244
Asn Ile Phe Asn Arg Gln Met Val Ala Arg Ser Leu Leu Asp Thr Leu
     60                  65                  70
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agg gaa gtc tgc gat gat gaa aga gat tgt att gct gtt ttg gaa aga   292
Arg Glu Val Cys Asp Asp Glu Arg Asp Cys Ile Ala Val Leu Glu Arg
 75                  80                  85                  90

att agc aga ttg gcc gat gat tca gaa cca act gtg aga gcg gag ctg   340
Ile Ser Arg Leu Ala Asp Asp Ser Glu Pro Thr Val Arg Ala Glu Leu
                 95                 100                 105

atg gaa cag gtg cct cac atc gca ctg ttt tgt caa gaa aac cgg cct   388
Met Glu Gln Val Pro His Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro
            110                 115                 120

tca ata cca tat gct ttt tca aaa ttc tta cta cct att gtg gtt aga   436
Ser Ile Pro Tyr Ala Phe Ser Lys Phe Leu Leu Pro Ile Val Val Arg
        125                 130                 135

tac ctt gca gat cag aat aat cag gtg agg aaa aca agt cag gca gct   484
Tyr Leu Ala Asp Gln Asn Asn Gln Val Arg Lys Thr Ser Gln Ala Ala
    140                 145                 150

ttg ctg gct ctg ttg gag cag gag ctc att gaa cga ttt gat gtg gag   532
Leu Leu Ala Leu Leu Glu Gln Glu Leu Ile Glu Arg Phe Asp Val Glu
155                 160                 165                 170

acc aaa gtg tgg cct gtc ctc ata gag ctg aca gcc cca gat agc aat   580
Thr Lys Val Trp Pro Val Leu Ile Glu Leu Thr Ala Pro Asp Ser Asn
                175                 180                 185

gat gat gtg aaa aca gaa gct gtg gct ata atg tgc aaa atg gct ccc   628
Asp Asp Val Lys Thr Glu Ala Val Ala Ile Met Cys Lys Met Ala Pro
            190                 195                 200

atg gtt ggg aag gat att aca gag cgt ctt atc ctc cct agg ttt tgt   676
Met Val Gly Lys Asp Ile Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys
        205                 210                 215

gag atg tgc tgc gat tgc aga atg ttt cac gtt cga aag gtc tgt gct   724
Glu Met Cys Cys Asp Cys Arg Met Phe His Val Arg Lys Val Cys Ala
    220                 225                 230

gcc aat ttt gga gat att tgc agt gta gtt ggc cag caa gct act gaa   772
Ala Asn Phe Gly Asp Ile Cys Ser Val Val Gly Gln Gln Ala Thr Glu
235                 240                 245                 250

gaa atg ttg ctg ccc aga ttt ttc cag ctt tgt tct gat aat gta tgg   820
Glu Met Leu Leu Pro Arg Phe Phe Gln Leu Cys Ser Asp Asn Val Trp
                255                 260                 265
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gga gtc cga aag gct tgt gct gaa tgc ttc atg gcg gtt tca tgt gca   868
Gly Val Arg Lys Ala Cys Ala Glu Cys Phe Met Ala Val Ser Cys Ala
            270                 275                 280

aca tgt caa gaa atc cga cgg acc aaa tta tca gca ctt ttt att aat   916
Thr Cys Gln Glu Ile Arg Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn
        285                 290                 295

ttg atc agt gat cct tca cgt tgg gtt cgc caa gca gct ttt cag tct   964
Leu Ile Ser Asp Pro Ser Arg Trp Val Arg Gln Ala Ala Phe Gln Ser
    300                 305                 310

ctg gga cct ttc ata tct act ttt gct aat cca tct agc tca ggc cag   1012
Leu Gly Pro Phe Ile Ser Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln
315                 320                 325                 330

tat ttt aaa gaa gaa agc aaa agt tca gaa gag atg tca gta gaa aac   1060
Tyr Phe Lys Glu Glu Ser Lys Ser Ser Glu Glu Met Ser Val Glu Asn
                335                 340                 345

aaa aat agg acc aga gat caa gaa gcc cca gag gat gta caa gtc agg   1108
Lys Asn Arg Thr Arg Asp Gln Glu Ala Pro Glu Asp Val Gln Val Arg
            350                 355                 360

cca gag gat act cct tca gat ctc agt gtt agt aat tcc agt gtc ata   1156
Pro Glu Asp Thr Pro Ser Asp Leu Ser Val Ser Asn Ser Ser Val Ile
        365                 370                 375

ctg gaa aac acg atg gaa gac cat gct gct gag gca tcc ggg aag cct   1204
Leu Glu Asn Thr Met Glu Asp His Ala Ala Glu Ala Ser Gly Lys Pro
    380                 385                 390

cta ggt gaa att agt gtt cca ctg gac agc tct tta ctt tgt act ttg   1252
Leu Gly Glu Ile Ser Val Pro Leu Asp Ser Ser Leu Leu Cys Thr Leu
395                 400                 405                 410

tcc tca gaa tct cac cag gaa gca gct agt aat gag aat gat aaa aaa   1300
Ser Ser Glu Ser His Gln Glu Ala Ala Ser Asn Glu Asn Asp Lys Lys
                415                 420                 425

cct ggt aac tac aaa tct atg tta cga cca gag gtt ggc acc act tca   1348
Pro Gly Asn Tyr Lys Ser Met Leu Arg Pro Glu Val Gly Thr Thr Ser
            430                 435                 440

caa gat tca gct ctc tta gat cag gaa ttg tat aac tcc ttc cat ttc   1396
Gln Asp Ser Ala Leu Leu Asp Gln Glu Leu Tyr Asn Ser Phe His Phe
        445                 450                 455
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tgg agg act cct ctt cct gaa ata gat cta gac ata gag ctt gaa cag   1444
Trp Arg Thr Pro Leu Pro Glu Ile Asp Leu Asp Ile Glu Leu Glu Gln
    460                 465                 470

aac tct ggg gga aaa ccc agc cca gag gga cca gag gaa gaa tct gag   1492
Asn Ser Gly Gly Lys Pro Ser Pro Glu Gly Pro Glu Glu Glu Ser Glu
475                 480                 485                 490

ggc cct gtg ccc agt tct cca aac atc acc atg gcc acc aga aag gaa   1540
Gly Pro Val Pro Ser Ser Pro Asn Ile Thr Met Ala Thr Arg Lys Glu
                495                 500                 505

ctg gaa gaa atg ata gaa aat cta gag ccc cac att gat gat cca gat   1588
Leu Glu Glu Met Ile Glu Asn Leu Glu Pro His Ile Asp Asp Pro Asp
            510                 515                 520

gtt aaa gca caa gtg gaa gtg ctg tcc gct gca cta cgt gct tcc agc   1636
Val Lys Ala Gln Val Glu Val Leu Ser Ala Ala Leu Arg Ala Ser Ser
        525                 530                 535

ctg gat gca cat gaa gag acc atc agt ata gaa aag aga agt gat ttg   1684
Leu Asp Ala His Glu Glu Thr Ile Ser Ile Glu Lys Arg Ser Asp Leu
    540                 545                 550

caa gat gaa ctg gat ata aat gag cta cca aat tgt aaa ata aat caa   1732
Gln Asp Glu Leu Asp Ile Asn Glu Leu Pro Asn Cys Lys Ile Asn Gln
555                 560                 565                 570

gaa gat tct gtg cct tta atc agc gat gct gtt gag aat atg gac tcc   1780
Glu Asp Ser Val Pro Leu Ile Ser Asp Ala Val Glu Asn Met Asp Ser
                575                 580                 585

act ctt cac tat att cac aac gat tca gac ttg agc aac aat agc agt   1828
Thr Leu His Tyr Ile His Asn Asp Ser Asp Leu Ser Asn Asn Ser Ser
            590                 595                 600

ttt agc cct gat gag gaa agg aga act aaa gta caa gat gtt gta cct   1876
Phe Ser Pro Asp Glu Glu Arg Arg Thr Lys Val Gln Asp Val Val Pro
        605                 610                 615

cag gcg ttg tta gat cag tat tta tct atg act gac cct tct cgt gca   1924
Gln Ala Leu Leu Asp Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala
    620                 625                 630

cag acg gtt gac act gaa att gct aag cac tgt gca tat agc ctc cct   1972
Gln Thr Val Asp Thr Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro
635                 640                 645                 650
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ggt gtg gcc ttg aca ctc gga aga cag aat tgg cac tgc ctg aga gag   2020
Gly Val Ala Leu Thr Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu
               655                 660                 665

acg tat gag act ctg gcc tca gac atg cag tgg aaa gtt cga cga act   2068
Thr Tyr Glu Thr Leu Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr
           670                 675                 680

cta gca ttc tcc atc cac gag ctt gca gtt att ctt gga gat caa ttg   2116
Leu Ala Phe Ser Ile His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu
       685                 690                 695

aca gct gca gat ctg gtt cca att ttt aat gga ttt tta aaa gac ctc   2164
Thr Ala Ala Asp Leu Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu
   700                 705                 710

gat gaa gtc agg ata ggt gtt ctt aaa cac ttg cat gat ttt ctg aag   2212
Asp Glu Val Arg Ile Gly Val Leu Lys His Leu His Asp Phe Leu Lys
715                 720                 725                 730

ctt ctt cat att gac aaa aga aga gaa tat ctt tat caa ctt cag gag   2260
Leu Leu His Ile Asp Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu
               735                 740                 745

ttt ttg gtg aca gat aat agt aga aat tgg cgg ttt cga gct gaa ctg   2308
Phe Leu Val Thr Asp Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu
           750                 755                 760

gct gaa cag ctg att tta ctt cta gag tta tat agt ccc aga gat gtt   2356
Ala Glu Gln Leu Ile Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val
       765                 770                 775

tat gac tat tta cgt ccc att gct ctg aat ctg tgt gca gac aaa gtt   2404
Tyr Asp Tyr Leu Arg Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val
   780                 785                 790

tct tct gtt cgt tgg att tcc tac aag ttg gtc agc gag atg gtg aag   2452
Ser Ser Val Arg Trp Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys
795                 800                 805                 810

aag ctg cac gcg gca aca cca cca acg ttc gga gtg gac ctc atc aat   2500
Lys Leu His Ala Ala Thr Pro Pro Thr Phe Gly Val Asp Leu Ile Asn
               815                 820                 825

gag ctt gtg gag aac ttt ggc aga tgt ccc aag tgg tct ggt cgg caa   2548
Glu Leu Val Glu Asn Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln
           830                 835                 840
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gcc ttt gtc ttt gtc tgc cag act gtc att gag gat gac tgc ctt ccc   2596
Ala Phe Val Phe Val Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro
        845                 850                 855

atg gac cag ttt gct gtg cat ctc atg ccg cat ctg cta acc tta gca   2644
Met Asp Gln Phe Ala Val His Leu Met Pro His Leu Leu Thr Leu Ala
    860                 865                 870

aat gac agg gtt cct aac gtg cga gtg ctg ctt gca aag aca tta aga   2692
Asn Asp Arg Val Pro Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg
875                 880                 885                 890

caa act cta cta gaa aaa gac tat ttc ttg gcc tct gcc agc tgc cac   2740
Gln Thr Leu Leu Glu Lys Asp Tyr Phe Leu Ala Ser Ala Ser Cys His
                895                 900                 905

cag gag gct gtg gag cag acc atc atg gct ctt cag atg gac cgt gac   2788
Gln Glu Ala Val Glu Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp
            910                 915                 920

agc gat gtc aag tat ttt gca agc atc cac cct gcc agt acc aaa atc   2836
Ser Asp Val Lys Tyr Phe Ala Ser Ile His Pro Ala Ser Thr Lys Ile
        925                 930                 935

tcc gaa gat gcc atg agc aca gcg tcc tca acc tac tagaaggctt        2882
Ser Glu Asp Ala Met Ser Thr Ala Ser Ser Thr Tyr
    940                 945                 950

gaatctcggt gtctttcctg cttccatgag agccgaggtt cagtgggcat tcgccacgca 2942

tgtgacctgg gatagctttc gggggaggag agaccttcct ctcctgcgga cttcattgca 3002

ggtgcaagtt gcctacaccc aataccaggg atttcaagag tcaagagaaa gtacagtaaa 3062

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tccagcccag ccctgtgtgt gaatcgtttg tgacgtgtgc aaatgggaaa ggaggggttt 3422

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ccaaataaaa tttattaata agatctatag agagagatat atacactttt gattgttttc 3782

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Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr Pro Leu
         35                  40                  45

Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Ile Phe Asn Arg Gln
     50                  55                  60

Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys Asp Asp
 65                  70                  75                  80

Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu Ala Asp
                 85                  90                  95

Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val Pro His
            100                 105                 110

Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr Ala Phe
        115                 120                 125

Ser Lys Phe Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp Gln Asn
    130                 135                 140
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Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu Leu Glu
145 150 155 160

Gln Glu Leu Ile Glu Arg Phe Asp Val Glu Thr Lys Val Trp Pro Val
165 170 175

Leu Ile Glu Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys Thr Glu
180 185 190

Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys Asp Ile
195 200 205

Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys Asp Cys
210 215 220

Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly Asp Ile
225 230 235 240

Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu Pro Arg
245 250 255

Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys Ala Cys
260 265 270

Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu Ile Arg
275 280 285

Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp Pro Ser
290 295 300

Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe Ile Ser
305 310 315 320

Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Tyr Phe Lys Glu Glu Ser
325 330 335

Lys Ser Ser Glu Glu Met Ser Val Glu Asn Lys Asn Arg Thr Arg Asp
340 345 350

Gln Glu Ala Pro Glu Asp Val Gln Val Arg Pro Glu Asp Thr Pro Ser
355 360 365

Asp Leu Ser Val Ser Asn Ser Ser Val Ile Leu Glu Asn Thr Met Glu
370 375 380

Asp His Ala Ala Glu Ala Ser Gly Lys Pro Leu Gly Glu Ile Ser Val
385 390 395 400

Pro Leu Asp Ser Ser Leu Leu Cys Thr Leu Ser Ser Glu Ser His Gln
405 410 415

Glu Ala Ala Ser Asn Glu Asn Asp Lys Lys Pro Gly Asn Tyr Lys Ser
420 425 430

Met Leu Arg Pro Glu Val Gly Thr Thr Ser Gln Asp Ser Ala Leu Leu
435 440 445

Asp Gln Glu Leu Tyr Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro
450 455 460

Glu Ile Asp Leu Asp Ile Glu Leu Glu Gln Asn Ser Gly Gly Lys Pro
465 470 475 480

Ser Pro Glu Gly Pro Glu Glu Glu Ser Glu Gly Pro Val Pro Ser Ser
485 490 495

Pro Asn Ile Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu
500 505 510

Asn Leu Glu Pro His Ile Asp Asp Pro Asp Val Lys Ala Gln Val Glu
515 520 525

Val Leu Ser Ala Ala Leu Arg Ala Ser Ser Leu Asp Ala His Glu Glu
530 535 540

Thr Ile Ser Ile Glu Lys Arg Ser Asp Leu Gln Asp Glu Leu Asp Ile
545 550 555 560

Asn Glu Leu Pro Asn Cys Lys Ile Asn Gln Glu Asp Ser Val Pro Leu
565 570 575

Ile Ser Asp Ala Val Glu Asn Met Asp Ser Thr Leu His Tyr Ile His
580 585 590

Asn Asp Ser Asp Leu Ser Asn Asn Ser Ser Phe Ser Pro Asp Glu Glu
595 600 605

Arg Arg Thr Lys Val Gln Asp Val Val Pro Gln Ala Leu Leu Asp Gln
610 615 620

Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val Asp Thr Glu
625 630 635 640

Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala Leu Thr Leu
645 650 655

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Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu Thr Leu Ala
           660                 665                 670

Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe Ser Ile His
       675                 680                 685

Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala Asp Leu Val
   690                 695                 700

Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val Arg Ile Gly
705                 710                 715                 720

Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His Ile Asp Lys
               725                 730                 735

Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val Thr Asp Asn
           740                 745                 750

Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln Leu Ile Leu
       755                 760                 765

Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr Leu Arg Pro
   770                 775                 780

Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val Arg Trp Ile
785                 790                 795                 800

Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His Ala Ala Thr
               805                 810                 815

Pro Pro Thr Phe Gly Val Asp Leu Ile Asn Glu Leu Val Glu Asn Phe
           820                 825                 830

Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val Phe Val Cys
       835                 840                 845

Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln Phe Ala Val
   850                 855                 860

His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg Val Pro Asn
865                 870                 875                 880

Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu Leu Glu Lys
               885                 890                 895

Asp Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala Val Glu Gln
           900                 905                 910
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Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val Lys Tyr Phe
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Ala Ser Ile His Pro Ala Ser Thr Lys Ile Ser Glu Asp Ala Met Ser
930 935 940

Thr Ala Ser Ser Thr Tyr
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<210> 5
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<210> 7
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1 5 10

gcg gac gga ctt ggt gtg gat gac tac agc tca gag tct gat gtg att 96
Ala Asp Gly Leu Gly Val Asp Asp Tyr Ser Ser Glu Ser Asp Val Ile
15 20 25 30

att ata cct tca gcc ctg gac ttc gtc tca caa gat gaa atg ttg aca 144
Ile Ile Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr
35 40 45

ccc ttg ggg agg ctg gac aag tat gct gca agt gag aac gtc ttt aac 192
Pro Leu Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Val Phe Asn
50 55 60

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aga caa atg gtg gcc cgg agt ttg ctg gat act ctg agg gaa gtc tgt      240
Arg Gln Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys
        65                  70                  75

ggt gag gag aga gac tgc att gct gtc ttg gaa agg atc agc cga ttg      288
Gly Glu Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu
    80                  85                  90

gct gat gac tca gaa cca acc gtg aga gcc gag ctg atg gaa cag gtg      336
Ala Asp Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val
95                  100                 105                 110

ccg cac atc gca ctg ttt tgt caa gag aac cga cct tcc ata cca tat      384
Pro His Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr
                115                 120                 125

gcc ttt tcc aag tac tta ctg cca atc gtg gtt aga tac ctt gca gac      432
Ala Phe Ser Lys Tyr Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp
            130                 135                 140

cag aat aac cag gtg agg aaa acc agc cag gca gct ttg ctg gct ctg      480
Gln Asn Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu
        145                 150                 155

ctg gag cag gag ctg att gag cga ctc gat gtg gag acc aag gtg tgc      528
Leu Glu Gln Glu Leu Ile Glu Arg Leu Asp Val Glu Thr Lys Val Cys
    160                 165                 170

ccc gtc ctc ata gac ttg act gcc cca gac agc aat gac gat gtg aag      576
Pro Val Leu Ile Asp Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys
175                 180                 185                 190

aca gag gcc gtg gct ata atg tgc aag atg gcc ccc atg gtt ggg aaa      624
Thr Glu Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys
                195                 200                 205

gat att aca gag cgt ctc atc ctc cct agg ttt tgt gag atg tgc tgt      672
Asp Ile Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys
            210                 215                 220

gac tgt aga atg ttt cac gtc cga aag gtc tgt gct gcc aat ttt gga      720
Asp Cys Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly
        225                 230                 235

gac att tgc agc gta gtt ggc cag caa gct aca gaa gaa atg ctg ctg      768
Asp Ile Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu
    240                 245                 250
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ccc agg ttc ttc cag ctg tgt tct gac aat gtg tgg ggc gtc cgg aag      816
Pro Arg Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys
255                 260                 265                 270

gcc tgt gct gag tgc ttc atg gcc gtc tcc tgc gcg aca tgc caa gaa      864
Ala Cys Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu
                275                 280                 285

atc cga cgg aca aag ttg tca gca ctg ttt att aac ttg atc agt gat      912
Ile Arg Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp
            290                 295                 300

cct tca cgt tgg gtt cgc caa gca gcc ttt cag tcc ctg ggg cct ttc      960
Pro Ser Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe
        305                 310                 315

ata tcc aca ttt gct aat cca tca agc tcg ggc cag tgc ttc aaa gat     1008
Ile Ser Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Cys Phe Lys Asp
    320                 325                 330

gag agc aaa agc tca gaa gac aaa gac agg atc aga gac gat ggt gtt     1056
Glu Ser Lys Ser Ser Glu Asp Lys Asp Arg Ile Arg Asp Asp Gly Val
335                 340                 345                 350

gta caa gaa gag cag agc agg cca gag gac gca cct tca gac ctc agt     1104
Val Gln Glu Glu Gln Ser Arg Pro Glu Asp Ala Pro Ser Asp Leu Ser
                355                 360                 365

gcc cct cac tcc agt gcc agg ctg gac ggc aca ctt gaa ggc tgt gct     1152
Ala Pro His Ser Ser Ala Arg Leu Asp Gly Thr Leu Glu Gly Cys Ala
            370                 375                 380

gcc gag acg cct ggg gac tct gca ggt gac atg cgt gtt cca gcg gac     1200
Ala Glu Thr Pro Gly Asp Ser Ala Gly Asp Met Arg Val Pro Ala Asp
        385                 390                 395

agc tcc tta ctc tgt act ttg tcc tca gag tct cct cag gaa gca gct     1248
Ser Ser Leu Leu Cys Thr Leu Ser Ser Glu Ser Pro Gln Glu Ala Ala
    400                 405                 410

agt gac gct gag agt ggt aaa aag cac gat aac aac agc aag tct gcg     1296
Ser Asp Ala Glu Ser Gly Lys Lys His Asp Asn Asn Ser Lys Ser Ala
415                 420                 425                 430

tcc cgg cca gac gtt ggc acc agc tcc cca gag ccc act ccc tta gat     1344
Ser Arg Pro Asp Val Gly Thr Ser Ser Pro Glu Pro Thr Pro Leu Asp
                435                 440                 445
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cag gaa atg ttc aac tcc ttc cat ttc tgg agg act cct cta ccc cag      1392
Gln Glu Met Phe Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro Gln
            450                 455                 460

ata gat ctt gat aaa gag ctc caa cag gac cct ggg gag agg ccc agc      1440
Ile Asp Leu Asp Lys Glu Leu Gln Gln Asp Pro Gly Glu Arg Pro Ser
        465                 470                 475

cca gag aga aca gga gat gca cct gca gcc cct gta cca ggt tct ccc      1488
Pro Glu Arg Thr Gly Asp Ala Pro Ala Ala Pro Val Pro Gly Ser Pro
    480                 485                 490

agt atc acc atg gct acc cgg aag gaa cta gaa gaa atg ata gaa aac      1536
Ser Ile Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu Asn
495                 500                 505                 510

cta gag ccg cac atg gat gac ccg gat gtt aaa gcc cag gtg gaa gtg      1584
Leu Glu Pro His Met Asp Asp Pro Asp Val Lys Ala Gln Val Glu Val
                515                 520                 525

ctg tcg gcc gcc ctg cgc gct tct acc ctg gat gct cac gac gag gct      1632
Leu Ser Ala Ala Leu Arg Ala Ser Thr Leu Asp Ala His Asp Glu Ala
            530                 535                 540

ggc ggt gca gag cag cgg agt gag ctg cag gac gac gca gtg ggt gcc      1680
Gly Gly Ala Glu Gln Arg Ser Glu Leu Gln Asp Asp Ala Val Gly Ala
        545                 550                 555

ggc ggc gag ctt cca aac tgt agc atc agc gaa gac act tct gag cct      1728
Gly Gly Glu Leu Pro Asn Cys Ser Ile Ser Glu Asp Thr Ser Glu Pro
    560                 565                 570

ctg gtc atc gct gct gag gag aat atg gag gcc act cct gac tat atc      1776
Leu Val Ile Ala Ala Glu Glu Asn Met Glu Ala Thr Pro Asp Tyr Ile
575                 580                 585                 590

cat gga ggt gcg gat gta ggc ccc ggt ggc ggt ggt ggc ttc agc ccg      1824
His Gly Gly Ala Asp Val Gly Pro Gly Gly Gly Gly Gly Phe Ser Pro
                595                 600                 605

gat gaa gag agg aga ccc aaa gtc cag gat gtc gta cca caa gcg tta      1872
Asp Glu Glu Arg Arg Pro Lys Val Gln Asp Val Val Pro Gln Ala Leu
            610                 615                 620

cta gac cag tac ctg tca atg acc gac cct tct cga gca cag aca gtc      1920
Leu Asp Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val
        625                 630                 635
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gac acc gag atc gct aag cac tgt gca tac agt ctg ccg ggt gtg gct     1968
Asp Thr Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala
    640                 645                 650

ctg acc ctt ggc aga cag aac tgg cac tgc ttg aga gag act tac gag     2016
Leu Thr Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu
655                 660                 665                 670

acc cta gcg tca gac atg cag tgg aaa gtt cga aga act ctg gcc ttc     2064
Thr Leu Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe
                675                 680                 685

tcc atc cat gag ctc gcg gtg att ctc ggg gac cag ctg aca gca gca     2112
Ser Ile His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala
            690                 695                 700

gac ctg gtt ccg att ttt aat ggg ttt tta aaa gat ctt gac gaa gtc     2160
Asp Leu Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val
        705                 710                 715

agg ata ggt gtt ctc aaa cac ttg cat gac ttt ctg aag ctt ctt cat     2208
Arg Ile Gly Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His
    720                 725                 730

att gat aaa aga aga gag tac ctt tat caa ctc cag gag ttt ttg gtg     2256
Ile Asp Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val
735                 740                 745                 750

aca gac aac agt aga aat tgg cgg ttt cga gct gaa ctg gca gaa cag     2304
Thr Asp Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln
                755                 760                 765

ctg att tta ctt cta gaa tta tat agt ccc aga gat gtt tat gat tac     2352
Leu Ile Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr
            770                 775                 780

tta cgt ccc att gct ctg aat ctg tgt gca gac aaa gtt tct tca gtc     2400
Leu Arg Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val
        785                 790                 795

cgt tgg att tcc tac aag ttg gtc agt gag atg gtg aag aag cta cac     2448
Arg Trp Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His
    800                 805                 810

atg gcg acg ccg cca acg ttc gga gtc gag ctc atc aat gag ctg gtg     2496
Met Ala Thr Pro Pro Thr Phe Gly Val Glu Leu Ile Asn Glu Leu Val
815                 820                 825                 830
```

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gag aac ttc ggc agg tgt cca aag tgg tcg ggc cgg cag gcc ttc gtc      2544
Glu Asn Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val
                835                 840                 845

ttc gtg tgc cag act gtc att gag gac gac tgc ctc ccc atg gac cag      2592
Phe Val Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln
            850                 855                 860

ttt gct gtg cac ctg atg cca cat ttg ctg acc ttg gca aat gac agg      2640
Phe Ala Val His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg
        865                 870                 875

gtt ccc aac gtt aga gtg ctg ctt gca aaa acc ctt cga cag act cta      2688
Val Pro Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu
    880                 885                 890

cta gag aaa gaa tac ttc tta gcc tct gcc agc tgt cat cag gag gcc      2736
Leu Glu Lys Glu Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala
895                 900                 905                 910

gtg gag cag aca atc atg gcc ctt cag atg gat cga gac agt gac gtc      2784
Val Glu Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val
                915                 920                 925

aag tac ttt gca agc atc cac ccg tcc agt acc aaa ctc tct gaa gac      2832
Lys Tyr Phe Ala Ser Ile His Pro Ser Ser Thr Lys Leu Ser Glu Asp
            930                 935                 940

gca atg agt aca gct tcc tcc acc tac tga cccctgaccc acggtgtcct        2882
Ala Met Ser Thr Ala Ser Ser Thr Tyr
        945                 950

tcctgcatcc gcgagagcct ggcctcagcc gcctgcgcca ctcgggacag ctgtggtggt   2942
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cttaacttga tcatggtcag ctctgaggtg cgactttcct tcccatgctg cacacccctg   3602
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Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr Pro Leu
        35                  40                  45

Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Val Phe Asn Arg Gln
    50                  55                  60

Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys Gly Glu
65                  70                  75                  80

Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu Ala Asp
                85                  90                  95

Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val Pro His
            100                 105                 110

Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr Ala Phe
        115                 120                 125

Ser Lys Tyr Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp Gln Asn
    130                 135                 140

Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu Leu Glu
145                 150                 155                 160

Gln Glu Leu Ile Glu Arg Leu Asp Val Glu Thr Lys Val Cys Pro Val
                165                 170                 175

Leu Ile Asp Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys Thr Glu
            180                 185                 190

Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys Asp Ile
        195                 200                 205

Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys Asp Cys
    210                 215                 220

Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly Asp Ile
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225 230 235 240

Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu Pro Arg
245 250 255

Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys Ala Cys
260 265 270

Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu Ile Arg
275 280 285

Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp Pro Ser
290 295 300

Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe Ile Ser
305 310 315 320

Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Cys Phe Lys Asp Glu Ser
325 330 335

Lys Ser Ser Glu Asp Lys Asp Arg Ile Arg Asp Asp Gly Val Val Gln
340 345 350

Glu Glu Gln Ser Arg Pro Glu Asp Ala Pro Ser Asp Leu Ser Ala Pro
355 360 365

His Ser Ser Ala Arg Leu Asp Gly Thr Leu Glu Gly Cys Ala Ala Glu
370 375 380

Thr Pro Gly Asp Ser Ala Gly Asp Met Arg Val Pro Ala Asp Ser Ser
385 390 395 400

Leu Leu Cys Thr Leu Ser Ser Glu Ser Pro Gln Glu Ala Ala Ser Asp
405 410 415

Ala Glu Ser Gly Lys Lys His Asp Asn Asn Ser Lys Ser Ala Ser Arg
420 425 430

Pro Asp Val Gly Thr Ser Ser Pro Glu Pro Thr Pro Leu Asp Gln Glu
435 440 445

Met Phe Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro Gln Ile Asp
450 455 460

Leu Asp Lys Glu Leu Gln Gln Asp Pro Gly Glu Arg Pro Ser Pro Glu
465 470 475 480

Arg Thr Gly Asp Ala Pro Ala Ala Pro Val Pro Gly Ser Pro Ser Ile

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                485                 490                 495

Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu Asn Leu Glu
            500                 505                 510

Pro His Met Asp Asp Pro Asp Val Lys Ala Gln Val Glu Val Leu Ser
        515                 520                 525

Ala Ala Leu Arg Ala Ser Thr Leu Asp Ala His Asp Glu Ala Gly Gly
    530                 535                 540

Ala Glu Gln Arg Ser Glu Leu Gln Asp Asp Ala Val Gly Ala Gly Gly
545                 550                 555                 560

Glu Leu Pro Asn Cys Ser Ile Ser Glu Asp Thr Ser Glu Pro Leu Val
                565                 570                 575

Ile Ala Ala Glu Glu Asn Met Glu Ala Thr Pro Asp Tyr Ile His Gly
            580                 585                 590

Gly Ala Asp Val Gly Pro Gly Gly Gly Gly Gly Phe Ser Pro Asp Glu
        595                 600                 605

Glu Arg Arg Pro Lys Val Gln Asp Val Val Pro Gln Ala Leu Leu Asp
    610                 615                 620

Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val Asp Thr
625                 630                 635                 640

Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala Leu Thr
                645                 650                 655

Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu Thr Leu
            660                 665                 670

Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe Ser Ile
        675                 680                 685

His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala Asp Leu
    690                 695                 700

Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val Arg Ile
705                 710                 715                 720

Gly Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His Ile Asp
                725                 730                 735

Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val Thr Asp
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740 745 750

Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln Leu Ile
755 760 765

Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr Leu Arg
770 775 780

Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val Arg Trp
785 790 795 800

Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His Met Ala
805 810 815

Thr Pro Pro Thr Phe Gly Val Glu Leu Ile Asn Glu Leu Val Glu Asn
820 825 830

Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val Phe Val
835 840 845

Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln Phe Ala
850 855 860

Val His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg Val Pro
865 870 875 880

Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu Leu Glu
885 890 895

Lys Glu Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala Val Glu
900 905 910

Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val Lys Tyr
915 920 925

Phe Ala Ser Ile His Pro Ser Ser Thr Lys Leu Ser Glu Asp Ala Met
930 935 940

Ser Thr Ala Ser Ser Thr Tyr
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atatccacat ttgctaatcc atcaagctcg ggccagtgct tcaaagatga gagcaaaagc    180
tcagaagaca aagacaggat cagagacgat ggtgttgtac aagaagagca gagcaggcca    240
gaggacgcac cttcagacct cagtgcccct cactccagtg ccaggctgga cggcacactt    300
gaaggctgtg ctgccgagac gcctggggac tctgcaggtg acatgcgtgt tccagcggac    360
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gatgttaaag cccaggtgga agtgctgtcg gccgccctgc gcgcttctac cctggatgct    780
cacgacgagg ctggcggtgc agagcagcgg agtgagctgc aggacgacgc agtgggtgcc    840
ggcggcgagc ttccaaactg tagcatcagc gaagacactt ctgagcctct ggtcatcgct    900
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ggtggcggtg gtggcttcag cccggatgaa gagaggagac ccaaagtcca ggatgtcgta   1020
ccacaagcgt tactagacca gtacctgtca atgaccgacc cttctcgagc acagacagtc   1080
gacaccgaga tcgctaagca ctgtgcatac agtctgccgg gtgtggctct ga           1132
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KUROKAWA, KIYOSHI

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ctg cag gag gac gca gac gga ttt ggt gtg gat gac tac agc tca gag  100
Leu Gln Glu Asp Ala Asp Gly Phe Gly Val Asp Asp Tyr Ser Ser Glu
                  15                  20                  25

tct gat gtg att att ata cct tca gcc ctg gac ttt gtc tca caa gat  148
Ser Asp Val Ile Ile Ile Pro Ser Ala Leu Asp Phe Val Ser Gln Asp
              30                  35                  40

gaa atg ttg acg ccc ctg ggg aga ttg gac aag tat gct gca agt gag  196
Glu Met Leu Thr Pro Leu Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu
          45                  50                  55

aac ata ttt aac aga caa atg gtg gcc cgg agt ttg ctc gat acc ttg  244
Asn Ile Phe Asn Arg Gln Met Val Ala Arg Ser Leu Leu Asp Thr Leu
      60                  65                  70

agg gaa gtc tgc gat gat gaa aga gat tgt att gct gtt ttg gaa aga  292
Arg Glu Val Cys Asp Asp Glu Arg Asp Cys Ile Ala Val Leu Glu Arg
  75                  80                  85                  90

att agc aga ttg gcc gat gat tca gaa cca act gtg aga gcg gag ctg  340
Ile Ser Arg Leu Ala Asp Asp Ser Glu Pro Thr Val Arg Ala Glu Leu
                  95                 100                 105
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atg gaa cag gtg cct cac atc gca ctg ttt tgt caa gaa aac cgg cct   388
Met Glu Gln Val Pro His Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro
            110                 115                 120

tca ata cca tat gct ttt tca aaa ttc tta cta cct att gtg gtt aga   436
Ser Ile Pro Tyr Ala Phe Ser Lys Phe Leu Leu Pro Ile Val Val Arg
        125                 130                 135

tac ctt gca gat cag aat aat cag gtg agg aaa aca agt cag gca gct   484
Tyr Leu Ala Asp Gln Asn Asn Gln Val Arg Lys Thr Ser Gln Ala Ala
    140                 145                 150

ttg ctg gct ctg ttg gag cag gag ctc att gaa cga ttt gat gtg gag   532
Leu Leu Ala Leu Leu Glu Gln Glu Leu Ile Glu Arg Phe Asp Val Glu
155                 160                 165                 170

acc aaa gtg tgg cct gtc ctc ata gag ctg aca gcc cca gat agc aat   580
Thr Lys Val Trp Pro Val Leu Ile Glu Leu Thr Ala Pro Asp Ser Asn
                175                 180                 185

gat gat gtg aaa aca gaa gct gtg gct ata atg tgc aaa atg gct ccc   628
Asp Asp Val Lys Thr Glu Ala Val Ala Ile Met Cys Lys Met Ala Pro
            190                 195                 200

atg gtt ggg aag gat att aca gag cgt ctt atc ctc cct agg ttt tgt   676
Met Val Gly Lys Asp Ile Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys
        205                 210                 215

gag atg tgc tgc gat tgc aga atg ttt cac gtt cga aag gtc tgt gct   724
Glu Met Cys Cys Asp Cys Arg Met Phe His Val Arg Lys Val Cys Ala
    220                 225                 230

gcc aat ttt gga gat att tgc agt gta gtt ggc cag caa gct act gaa   772
Ala Asn Phe Gly Asp Ile Cys Ser Val Val Gly Gln Gln Ala Thr Glu
235                 240                 245                 250

gaa atg ttg ctg ccc aga ttt ttc cag ctt tgt tct gat aat gta tgg   820
Glu Met Leu Leu Pro Arg Phe Phe Gln Leu Cys Ser Asp Asn Val Trp
                255                 260                 265

gga gtc cga aag gct tgt gct gaa tgc ttc atg gcg gtt tca tgt gca   868
Gly Val Arg Lys Ala Cys Ala Glu Cys Phe Met Ala Val Ser Cys Ala
            270                 275                 280

aca tgt caa gaa atc cga cgg acc aaa tta tca gca ctt ttt att aat   916
Thr Cys Gln Glu Ile Arg Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn
        285                 290                 295

ttg atc agt gat cct tca cgt tgg gtt cgc caa gca gct ttt cag tct   964
Leu Ile Ser Asp Pro Ser Arg Trp Val Arg Gln Ala Ala Phe Gln Ser
    300                 305                 310

ctg gga cct ttc ata tct act ttt gct aat cca tct agc tca ggc cag   1012
Leu Gly Pro Phe Ile Ser Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln
315                 320                 325                 330
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tat ttt aaa gaa gaa agc aaa agt tca gaa gag atg tca gta gaa aac   1060
Tyr Phe Lys Glu Glu Ser Lys Ser Ser Glu Glu Met Ser Val Glu Asn
                335                 340                 345

aaa aat agg acc aga gat caa gaa gcc cca gag gat gta caa gtc agg   1108
Lys Asn Arg Thr Arg Asp Gln Glu Ala Pro Glu Asp Val Gln Val Arg
            350                 355                 360

cca gag gat act cct tca gat ctc agt gtt agt aat tcc agt gtc ata   1156
Pro Glu Asp Thr Pro Ser Asp Leu Ser Val Ser Asn Ser Ser Val Ile
        365                 370                 375

ctg gaa aac acg atg gaa gac cat gct gct gag gca tcc ggg aag cct   1204
Leu Glu Asn Thr Met Glu Asp His Ala Ala Glu Ala Ser Gly Lys Pro
    380                 385                 390

cta ggt gaa att agt gtt cca ctg gac agc tct tta ctt tgt act ttg   1252
Leu Gly Glu Ile Ser Val Pro Leu Asp Ser Ser Leu Leu Cys Thr Leu
395                 400                 405                 410

tcc tca gaa tct cac cag gaa gca gct agt aat gag aat gat aaa aaa   1300
Ser Ser Glu Ser His Gln Glu Ala Ala Ser Asn Glu Asn Asp Lys Lys
                415                 420                 425

cct ggt aac tac aaa tct atg tta cga cca gag gtt ggc acc act tca   1348
Pro Gly Asn Tyr Lys Ser Met Leu Arg Pro Glu Val Gly Thr Thr Ser
            430                 435                 440

caa gat tca gct ctc tta gat cag gaa ttg tat aac tcc ttc cat ttc   1396
Gln Asp Ser Ala Leu Leu Asp Gln Glu Leu Tyr Asn Ser Phe His Phe
        445                 450                 455

tgg agg act cct ctt cct gaa ata gat cta gac ata gag ctt gaa cag   1444
Trp Arg Thr Pro Leu Pro Glu Ile Asp Leu Asp Ile Glu Leu Glu Gln
    460                 465                 470

aac tct ggg gga aaa ccc agc cca gag gga cca gag gaa gaa tct gag   1492
Asn Ser Gly Gly Lys Pro Ser Pro Glu Gly Pro Glu Glu Glu Ser Glu
475                 480                 485                 490

ggc cct gtg ccc agt tct cca aac atc acc atg gcc acc aga aag gaa   1540
Gly Pro Val Pro Ser Ser Pro Asn Ile Thr Met Ala Thr Arg Lys Glu
                495                 500                 505

ctg gaa gaa atg ata gaa aat cta gag ccc cac att gat gat cca gat   1588
Leu Glu Glu Met Ile Glu Asn Leu Glu Pro His Ile Asp Asp Pro Asp
            510                 515                 520

gtt aaa gca caa gtg gaa gtg ctg tcc gct gca cta cgt gct tcc agc   1636
Val Lys Ala Gln Val Glu Val Leu Ser Ala Ala Leu Arg Ala Ser Ser
        525                 530                 535

ctg gat gca cat gaa gag acc atc agt ata gaa aag aga agt gat ttg   1684
Leu Asp Ala His Glu Glu Thr Ile Ser Ile Glu Lys Arg Ser Asp Leu
    540                 545                 550
```

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caa gat gaa ctg gat ata aat gag cta cca aat tgt aaa ata aat caa   1732
Gln Asp Glu Leu Asp Ile Asn Glu Leu Pro Asn Cys Lys Ile Asn Gln
555                 560                 565                 570

gaa gat tct gtg cct tta atc agc gat gct gtt gag aat atg gac tcc   1780
Glu Asp Ser Val Pro Leu Ile Ser Asp Ala Val Glu Asn Met Asp Ser
                575                 580                 585

act ctt cac tat att cac aac gat tca gac ttg agc aac aat agc agt   1828
Thr Leu His Tyr Ile His Asn Asp Ser Asp Leu Ser Asn Asn Ser Ser
            590                 595                 600

ttt agc cct gat gag gaa agg aga act aaa gta caa gat gtt gta cct   1876
Phe Ser Pro Asp Glu Glu Arg Arg Thr Lys Val Gln Asp Val Val Pro
        605                 610                 615

cag gcg ttg tta gat cag tat tta tct atg act gac cct tct cgt gca   1924
Gln Ala Leu Leu Asp Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala
    620                 625                 630

cag acg gtt gac act gaa att gct aag cac tgt gca tat agc ctc cct   1972
Gln Thr Val Asp Thr Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro
635                 640                 645                 650

ggt gtg gcc ttg aca ctc gga aga cag aat tgg cac tgc ctg aga gag   2020
Gly Val Ala Leu Thr Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu
                655                 660                 665

acg tat gag act ctg gcc tca gac atg cag tgg aaa gtt cga cga act   2068
Thr Tyr Glu Thr Leu Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr
            670                 675                 680

cta gca ttc tcc atc cac gag ctt gca gtt att ctt gga gat caa ttg   2116
Leu Ala Phe Ser Ile His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu
        685                 690                 695

aca gct gca gat ctg gtt cca att ttt aat gga ttt tta aaa gac ctc   2164
Thr Ala Ala Asp Leu Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu
    700                 705                 710

gat gaa gtc agg ata ggt gtt ctt aaa cac ttg cat gat ttt ctg aag   2212
Asp Glu Val Arg Ile Gly Val Leu Lys His Leu His Asp Phe Leu Lys
715                 720                 725                 730

ctt ctt cat att gac aaa aga aga gaa tat ctt tat caa ctt cag gag   2260
Leu Leu His Ile Asp Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu
                735                 740                 745

ttt ttg gtg aca gat aat agt aga aat tgg cgg ttt cga gct gaa ctg   2308
Phe Leu Val Thr Asp Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu
            750                 755                 760

gct gaa cag ctg att tta ctt cta gag tta tat agt ccc aga gat gtt   2356
Ala Glu Gln Leu Ile Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val
        765                 770                 775
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tat gac tat tta cgt ccc att gct ctg aat ctg tgt gca gac aaa gtt   2404
Tyr Asp Tyr Leu Arg Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val
    780                 785                 790

tct tct gtt cgt tgg att tcc tac aag ttg gtc agc gag atg gtg aag   2452
Ser Ser Val Arg Trp Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys
795                 800                 805                 810

aag ctg cac gcg gca aca cca cca acg ttc gga gtg gac ctc atc aat   2500
Lys Leu His Ala Ala Thr Pro Pro Thr Phe Gly Val Asp Leu Ile Asn
                815                 820                 825

gag ctt gtg gag aac ttt ggc aga tgt ccc aag tgg tct ggt cgg caa   2548
Glu Leu Val Glu Asn Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln
            830                 835                 840

gcc ttt gtc ttt gtc tgc cag act gtc att gag gat gac tgc ctt ccc   2596
Ala Phe Val Phe Val Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro
        845                 850                 855

atg gac cag ttt gct gtg cat ctc atg ccg cat ctg cta acc tta gca   2644
Met Asp Gln Phe Ala Val His Leu Met Pro His Leu Leu Thr Leu Ala
    860                 865                 870

aat gac agg gtt cct aac gtg cga gtg ctg ctt gca aag aca tta aga   2692
Asn Asp Arg Val Pro Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg
875                 880                 885                 890

caa act cta cta gaa aaa gac tat ttc ttg gcc tct gcc agc tgc cac   2740
Gln Thr Leu Leu Glu Lys Asp Tyr Phe Leu Ala Ser Ala Ser Cys His
                895                 900                 905

cag gag gct gtg gag cag acc atc atg gct ctt cag atg gac cgt gac   2788
Gln Glu Ala Val Glu Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp
            910                 915                 920

agc gat gtc aag tat ttt gca agc atc cac cct gcc agt acc aaa atc   2836
Ser Asp Val Lys Tyr Phe Ala Ser Ile His Pro Ala Ser Thr Lys Ile
        925                 930                 935

tcc gaa gat gcc atg agc aca gcg tcc tca acc tac tagaaggctt        2882
Ser Glu Asp Ala Met Ser Thr Ala Ser Ser Thr Tyr
    940                 945                 950

gaatctcggt gtctttcctg cttccatgag agccgaggtt cagtgggcat tcgccacgca 2942

tgtgacctgg gatagctttc gggggaggag agaccttcct ctcctgcgga cttcattgca 3002

ggtgcaagtt gcctacaccc aataccaggg atttcaagag tcaagagaaa gtacagtaaa 3062

cactattatc ttatcttgac tttaagggga aataatttct cagaggatta taattgtcac 3122

cgaagcctta aatccttctc ttcctgactg aatgaaactt gaattggcag agcattttcc 3182

ttatggaagg gatgagattc ccagagacct gcattgcttt ctcctggttt tatttaacaa 3242

tcgacaaatg aaattcttac agcctgaagg cagacgtgtg cccagatgtg aaagagacct 3302
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tcagtatcag ccctaactct tctctcccag gaaggacttg ctgggctctg tggccagctg 3362

tccagcccag ccctgtgtgt gaatcgtttg tgacgtgtgc aaatgggaaa ggaggggttt 3422

ttacatctcc taaaggacct gatgccaaca caagtaggat tgacttaaac tcttaagcgc 3482

agcatattgc tgtacacatt tacagaatgg ttgctgagtg tctgtgtctg atttttttcat 3542

gctggtcatg acctgaagga aatttattag acgtataatg tatgtctggt gtttttaact 3602

tgatcatgat cagctctgag gtgcaacttc ttcacatact gtacatacct gtgaccactc 3662

ttgggagtgc tgcagtcttt aatcatgctg tttaaactgt tgtggcacaa gttctcttgt 3722

ccaaataaaa tttattaata agatctatag agagagatat atacactttt gattgttttc 3782

tagatgtcta ccaataaatg caatttgtga cctgtattaa tgatttaaag tggggaaact 3842

agattaaaat atttgtcttt taaaaaaata aaaaaaaaaa aaaaaaaaaa aaaaaaaaa 3901

<210> 2
<211> 950
<212> PRT
<213> Homo sapiens

<400> 2

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Met Ala Asp Leu Ser Leu Leu Gln Glu Asp Leu Gln Glu Asp Ala Asp
  1               5                  10                  15

Gly Phe Gly Val Asp Asp Tyr Ser Ser Glu Ser Asp Val Ile Ile Ile
             20                  25                  30

Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr Pro Leu
         35                  40                  45

Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Ile Phe Asn Arg Gln
     50                  55                  60

Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys Asp Asp
 65                  70                  75                  80

Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu Ala Asp
                 85                  90                  95

Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val Pro His
            100                 105                 110

Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr Ala Phe
        115                 120                 125

Ser Lys Phe Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp Gln Asn
    130                 135                 140

Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu Leu Glu
145                 150                 155                 160
```

```
Gln Glu Leu Ile Glu Arg Phe Asp Val Glu Thr Lys Val Trp Pro Val
                165                 170                 175

Leu Ile Glu Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys Thr Glu
            180                 185                 190

Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys Asp Ile
        195                 200                 205

Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys Asp Cys
    210                 215                 220

Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly Asp Ile
225                 230                 235                 240

Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu Pro Arg
                245                 250                 255

Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys Ala Cys
            260                 265                 270

Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu Ile Arg
        275                 280                 285

Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp Pro Ser
    290                 295                 300

Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe Ile Ser
305                 310                 315                 320

Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Tyr Phe Lys Glu Glu Ser
                325                 330                 335

Lys Ser Ser Glu Glu Met Ser Val Glu Asn Lys Asn Arg Thr Arg Asp
            340                 345                 350

Gln Glu Ala Pro Glu Asp Val Gln Val Arg Pro Glu Asp Thr Pro Ser
        355                 360                 365

Asp Leu Ser Val Ser Asn Ser Ser Val Ile Leu Glu Asn Thr Met Glu
    370                 375                 380

Asp His Ala Ala Glu Ala Ser Gly Lys Pro Leu Gly Glu Ile Ser Val
385                 390                 395                 400

Pro Leu Asp Ser Ser Leu Leu Cys Thr Leu Ser Ser Glu Ser His Gln
                405                 410                 415

Glu Ala Ala Ser Asn Glu Asn Asp Lys Lys Pro Gly Asn Tyr Lys Ser
            420                 425                 430

Met Leu Arg Pro Glu Val Gly Thr Thr Ser Gln Asp Ser Ala Leu Leu
        435                 440                 445

Asp Gln Glu Leu Tyr Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro
    450                 455                 460
```

Glu Ile Asp Leu Asp Ile Glu Leu Glu Gln Asn Ser Gly Gly Lys Pro
465 470 475 480

Ser Pro Glu Gly Pro Glu Glu Glu Ser Glu Gly Pro Val Pro Ser Ser
485 490 495

Pro Asn Ile Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu
500 505 510

Asn Leu Glu Pro His Ile Asp Asp Pro Asp Val Lys Ala Gln Val Glu
515 520 525

Val Leu Ser Ala Ala Leu Arg Ala Ser Ser Leu Asp Ala His Glu Glu
530 535 540

Thr Ile Ser Ile Glu Lys Arg Ser Asp Leu Gln Asp Glu Leu Asp Ile
545 550 555 560

Asn Glu Leu Pro Asn Cys Lys Ile Asn Gln Glu Asp Ser Val Pro Leu
565 570 575

Ile Ser Asp Ala Val Glu Asn Met Asp Ser Thr Leu His Tyr Ile His
580 585 590

Asn Asp Ser Asp Leu Ser Asn Asn Ser Ser Phe Ser Pro Asp Glu Glu
595 600 605

Arg Arg Thr Lys Val Gln Asp Val Val Pro Gln Ala Leu Leu Asp Gln
610 615 620

Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val Asp Thr Glu
625 630 635 640

Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala Leu Thr Leu
645 650 655

Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu Thr Leu Ala
660 665 670

Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe Ser Ile His
675 680 685

Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala Asp Leu Val
690 695 700

Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val Arg Ile Gly
705 710 715 720

Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His Ile Asp Lys
725 730 735

Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val Thr Asp Asn
740 745 750

Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln Leu Ile Leu
755 760 765

```
Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr Leu Arg Pro
    770                 775                 780

Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val Arg Trp Ile
785                 790                 795                 800

Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His Ala Ala Thr
                805                 810                 815

Pro Pro Thr Phe Gly Val Asp Leu Ile Asn Glu Leu Val Glu Asn Phe
            820                 825                 830

Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val Phe Val Cys
        835                 840                 845

Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln Phe Ala Val
    850                 855                 860

His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg Val Pro Asn
865                 870                 875                 880

Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu Leu Glu Lys
                885                 890                 895

Asp Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala Val Glu Gln
            900                 905                 910

Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val Lys Tyr Phe
        915                 920                 925

Ala Ser Ile His Pro Ala Ser Thr Lys Ile Ser Glu Asp Ala Met Ser
    930                 935                 940

Thr Ala Ser Ser Thr Tyr
945                 950


<210> 3
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially
      Synthesized Primer Sequence

<400> 3
tgtaaaacga cggccagt                                                  18


<210> 4
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
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<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<400> 4
accatgatta cgccaagctt g 21

<210> 5
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<220>
<223> 5'-phosphorylation

<400> 5
tcagagaggt cattc 15

<210> 6
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<400> 6
tcattgatgg gtcctcaa 18

<210> 7
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<400> 7
agattcttga gctcagat 18

<210> 8
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<400> 8
aatggtggca taaacatg 18

<210> 9
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Primer Sequence

<400> 9
acagacaaat tgaacttc 18

<210> 10
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Artificially Synthesized Probe Sequence

<400> 10
ctcatggaag caggaaagac accgagattc aagc 34

<210> 11
<211> 3658
<212> DNA
<213> RATTUS NORVEGICUS

<220>
<221> CDS
<222> (7)..(2862)
<223> N=G,A,C or T

<400> 11
cacaag atg gcg gac ctc tcg ctg ctc cag gag gac ctg ccg gag gac 48
Met Ala Asp Leu Ser Leu Leu Gln Glu Asp Leu Pro Glu Asp
1 5 10

gcg gac gga ctt ggt gtg gat gac tac agc tca gag tct gat gtg att 96
Ala Asp Gly Leu Gly Val Asp Asp Tyr Ser Ser Glu Ser Asp Val Ile
15 20 25 30

att ata cct tca gcc ctg gac ttc gtc tca caa gat gaa atg ttg aca 144
Ile Ile Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr
35 40 45

ccc ttg ggg agg ctg gac aag tat gct gca agt gag aac gtc ttt aac 192
Pro Leu Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Val Phe Asn
50 55 60

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aga caa atg gtg gcc cgg agt ttg ctg gat act ctg agg gaa gtc tgt      240
Arg Gln Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys
        65                  70                  75

ggt gag gag aga gac tgc att gct gtc ttg gaa agg atc agc cga ttg      288
Gly Glu Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu
    80                  85                  90

gct gat gac tca gaa cca acc gtg aga gcc gag ctg atg gaa cag gtg      336
Ala Asp Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val
95                  100                 105                 110

ccg cac atc gca ctg ttt tgt caa gag aac cga cct tcc ata cca tat      384
Pro His Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr
                115                 120                 125

gcc ttt tcc aag tac tta ctg cca atc gtg gtt aga tac ctt gca gac      432
Ala Phe Ser Lys Tyr Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp
            130                 135                 140

cag aat aac cag gtg agg aaa acc agc cag gca gct ttg ctg gct ctg      480
Gln Asn Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu
        145                 150                 155

ctg gag cag gag ctg att gag cga ctc gat gtg gag acc aag gtg tgc      528
Leu Glu Gln Glu Leu Ile Glu Arg Leu Asp Val Glu Thr Lys Val Cys
    160                 165                 170

ccc gtc ctc ata gac ttg act gcc cca gac agc aat gac gat gtg aag      576
Pro Val Leu Ile Asp Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys
175                 180                 185                 190

aca gag gcc gtg gct ata atg tgc aag atg gcc ccc atg gtt ggg aaa      624
Thr Glu Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys
                195                 200                 205

gat att aca gag cgt ctc atc ctc cct agg ttt tgt gag atg tgc tgt      672
Asp Ile Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys
            210                 215                 220

gac tgt aga atg ttt cac gtc cga aag gtc tgt gct gcc aat ttt gga      720
Asp Cys Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly
        225                 230                 235

gac att tgc agc gta gtt ggc cag caa gct aca gaa gaa atg ctg ctg      768
Asp Ile Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu
    240                 245                 250

ccc agg ttc ttc cag ctg tgt tct gac aat gtg tgg ggc gtc cgg aag      816
Pro Arg Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys
255                 260                 265                 270

gcc tgt gct gag tgc ttc atg gcc gtc tcc tgc gcg aca tgc caa gaa      864
Ala Cys Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu
                275                 280                 285
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atc cga cgg aca aag ttg tca gca ctg ttt att aac ttg atc agt gat      912
Ile Arg Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp
            290                 295                 300

cct tca cgt tgg gtt cgc caa gca gcc ttt cag tcc ctg ggg cct ttc      960
Pro Ser Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe
        305                 310                 315

ata tcc aca ttt gct aat cca tca agc tcg ggc cag tgc ttc aaa gat     1008
Ile Ser Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Cys Phe Lys Asp
    320                 325                 330

gag agc aaa agc tca gaa gac aaa gac agg atc aga gac gat ggt gtt     1056
Glu Ser Lys Ser Ser Glu Asp Lys Asp Arg Ile Arg Asp Asp Gly Val
335                 340                 345                 350

gta caa gaa gag cag agc agg cca gag gac gca cct tca gac ctc agt     1104
Val Gln Glu Glu Gln Ser Arg Pro Glu Asp Ala Pro Ser Asp Leu Ser
                355                 360                 365

gcc cct cac tcc agt gcc agg ctg gac ggc aca ctt gaa ggc tgt gct     1152
Ala Pro His Ser Ser Ala Arg Leu Asp Gly Thr Leu Glu Gly Cys Ala
            370                 375                 380

gcc gag acg cct ggg gac tct gca ggt gac atg cgt gtt cca gcg gac     1200
Ala Glu Thr Pro Gly Asp Ser Ala Gly Asp Met Arg Val Pro Ala Asp
        385                 390                 395

agc tcc tta ctc tgt act ttg tcc tca gag tct cct cag gaa gca gct     1248
Ser Ser Leu Leu Cys Thr Leu Ser Ser Glu Ser Pro Gln Glu Ala Ala
    400                 405                 410

agt gac gct gag agt ggt aaa aag cac gat aac aac agc aag tct gcg     1296
Ser Asp Ala Glu Ser Gly Lys Lys His Asp Asn Asn Ser Lys Ser Ala
415                 420                 425                 430

tcc cgg cca gac gtt ggc acc agc tcc cca gag ccc act ccc tta gat     1344
Ser Arg Pro Asp Val Gly Thr Ser Ser Pro Glu Pro Thr Pro Leu Asp
                435                 440                 445

cag gaa atg ttc aac tcc ttc cat ttc tgg agg act cct cta ccc cag     1392
Gln Glu Met Phe Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro Gln
            450                 455                 460

ata gat ctt gat aaa gag ctc caa cag gac cct ggg gag agg ccc agc     1440
Ile Asp Leu Asp Lys Glu Leu Gln Gln Asp Pro Gly Glu Arg Pro Ser
        465                 470                 475

cca gag aga aca gga gat gca cct gca gcc cct gta cca ggt tct ccc     1488
Pro Glu Arg Thr Gly Asp Ala Pro Ala Ala Pro Val Pro Gly Ser Pro
    480                 485                 490

agt atc acc atg gct acc cgg aag gaa cta gaa gaa atg ata gaa aac     1536
Ser Ile Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu Asn
495                 500                 505                 510
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cta gag ccg cac atg gat gac ccg gat gtt aaa gcc cag gtg gaa gtg      1584
Leu Glu Pro His Met Asp Asp Pro Asp Val Lys Ala Gln Val Glu Val
                515                 520                 525

ctg tcg gcc gcc ctg cgc gct tct acc ctg gat gct cac gac gag gct      1632
Leu Ser Ala Ala Leu Arg Ala Ser Thr Leu Asp Ala His Asp Glu Ala
            530                 535                 540

ggc ggt gca gag cag cgg agt gag ctg cag gac gac gca gtg ggt gcc      1680
Gly Gly Ala Glu Gln Arg Ser Glu Leu Gln Asp Asp Ala Val Gly Ala
        545                 550                 555

ggc ggc gag ctt cca aac tgt agc atc agc gaa gac act tct gag cct      1728
Gly Gly Glu Leu Pro Asn Cys Ser Ile Ser Glu Asp Thr Ser Glu Pro
    560                 565                 570

ctg gtc atc gct gct gag gag aat atg gag gcc act cct gac tat atc      1776
Leu Val Ile Ala Ala Glu Glu Asn Met Glu Ala Thr Pro Asp Tyr Ile
575                 580                 585                 590

cat gga ggt gcg gat gta ggc ccc ggt ggc ggt ggt ggc ttc agc ccg      1824
His Gly Gly Ala Asp Val Gly Pro Gly Gly Gly Gly Gly Phe Ser Pro
                595                 600                 605

gat gaa gag agg aga ccc aaa gtc cag gat gtc gta cca caa gcg tta      1872
Asp Glu Glu Arg Arg Pro Lys Val Gln Asp Val Val Pro Gln Ala Leu
            610                 615                 620

cta gac cag tac ctg tca atg acc gac cct tct cga gca cag aca gtc      1920
Leu Asp Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val
        625                 630                 635

gac acc gag atc gct aag cac tgt gca tac agt ctg ccg ggt gtg gct      1968
Asp Thr Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala
    640                 645                 650

ctg acc ctt ggc aga cag aac tgg cac tgc ttg aga gag act tac gag      2016
Leu Thr Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu
655                 660                 665                 670

acc cta gcg tca gac atg cag tgg aaa gtt cga aga act ctg gcc ttc      2064
Thr Leu Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe
                675                 680                 685

tcc atc cat gag ctc gcg gtg att ctc ggg gac cag ctg aca gca gca      2112
Ser Ile His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala
            690                 695                 700

gac ctg gtt ccg att ttt aat ggg ttt tta aaa gat ctt gac gaa gtc      2160
Asp Leu Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val
        705                 710                 715

agg ata ggt gtt ctc aaa cac ttg cat gac ttt ctg aag ctt ctt cat      2208
Arg Ile Gly Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His
    720                 725                 730
```

```
att gat aaa aga aga gag tac ctt tat caa ctc cag gag ttt ttg gtg      2256
Ile Asp Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val
735                 740                 745                 750

aca gac aac agt aga aat tgg cgg ttt cga gct gaa ctg gca gaa cag      2304
Thr Asp Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln
                755                 760                 765

ctg att tta ctt cta gaa tta tat agt ccc aga gat gtt tat gat tac      2352
Leu Ile Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr
            770                 775                 780

tta cgt ccc att gct ctg aat ctg tgt gca gac aaa gtt tct tca gtc      2400
Leu Arg Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val
        785                 790                 795

cgt tgg att tcc tac aag ttg gtc agt gag atg gtg aag aag cta cac      2448
Arg Trp Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His
    800                 805                 810

atg gcg acg ccg cca acg ttc gga gtc gag ctc atc aat gag ctg gtg      2496
Met Ala Thr Pro Pro Thr Phe Gly Val Glu Leu Ile Asn Glu Leu Val
815                 820                 825                 830

gag aac ttc ggc agg tgt cca aag tgg tcg ggc cgg cag gcc ttc gtc      2544
Glu Asn Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val
                835                 840                 845

ttc gtg tgc cag act gtc att gag gac gac tgc ctc ccc atg gac cag      2592
Phe Val Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln
            850                 855                 860

ttt gct gtg cac ctg atg cca cat ttg ctg acc ttg gca aat gac agg      2640
Phe Ala Val His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg
        865                 870                 875

gtt ccc aac gtt aga gtg ctg ctt gca aaa acc ctt cga cag act cta      2688
Val Pro Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu
    880                 885                 890

cta gag aaa gaa tac ttc tta gcc tct gcc agc tgt cat cag gag gcc      2736
Leu Glu Lys Glu Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala
895                 900                 905                 910

gtg gag cag aca atc atg gcc ctt cag atg gat cga gac agt gac gtc      2784
Val Glu Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val
                915                 920                 925

aag tac ttt gca agc atc cac ccg tcc agt acc aaa ctc tct gaa gac      2832
Lys Tyr Phe Ala Ser Ile His Pro Ser Ser Thr Lys Leu Ser Glu Asp
            930                 935                 940

gca atg agt aca gct tcc tcc acc tac tga cccctgaccc acggtgtcct      2882
Ala Met Ser Thr Ala Ser Ser Thr Tyr
        945                 950
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tcctgcatcc gcgagagcct ggcctcagcc gcctgcgcca ctcgggacag ctgtggtggt   2942
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gaatgacttg aattggcaga gcattttccc ttcgggaagg aggargttcc cagagacctg   3182
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<210> 12
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<212> PRT
<213> RATTUS NORVEGICUS

<400> 12

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Met Ala Asp Leu Ser Leu Leu Gln Glu Asp Leu Pro Glu Asp Ala Asp
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Gly Leu Gly Val Asp Asp Tyr Ser Ser Glu Ser Asp Val Ile Ile Ile
            20                  25                  30

Pro Ser Ala Leu Asp Phe Val Ser Gln Asp Glu Met Leu Thr Pro Leu
        35                  40                  45

Gly Arg Leu Asp Lys Tyr Ala Ala Ser Glu Asn Val Phe Asn Arg Gln
    50                  55                  60

Met Val Ala Arg Ser Leu Leu Asp Thr Leu Arg Glu Val Cys Gly Glu
65                  70                  75                  80

Glu Arg Asp Cys Ile Ala Val Leu Glu Arg Ile Ser Arg Leu Ala Asp
                85                  90                  95

Asp Ser Glu Pro Thr Val Arg Ala Glu Leu Met Glu Gln Val Pro His
            100                 105                 110

Ile Ala Leu Phe Cys Gln Glu Asn Arg Pro Ser Ile Pro Tyr Ala Phe
        115                 120                 125

Ser Lys Tyr Leu Leu Pro Ile Val Val Arg Tyr Leu Ala Asp Gln Asn
    130                 135                 140

Asn Gln Val Arg Lys Thr Ser Gln Ala Ala Leu Leu Ala Leu Leu Glu
145                 150                 155                 160

Gln Glu Leu Ile Glu Arg Leu Asp Val Glu Thr Lys Val Cys Pro Val
                165                 170                 175

Leu Ile Asp Leu Thr Ala Pro Asp Ser Asn Asp Asp Val Lys Thr Glu
            180                 185                 190
```

```
Ala Val Ala Ile Met Cys Lys Met Ala Pro Met Val Gly Lys Asp Ile
        195                 200                 205

Thr Glu Arg Leu Ile Leu Pro Arg Phe Cys Glu Met Cys Cys Asp Cys
    210                 215                 220

Arg Met Phe His Val Arg Lys Val Cys Ala Ala Asn Phe Gly Asp Ile
225                 230                 235                 240

Cys Ser Val Val Gly Gln Gln Ala Thr Glu Glu Met Leu Leu Pro Arg
                245                 250                 255

Phe Phe Gln Leu Cys Ser Asp Asn Val Trp Gly Val Arg Lys Ala Cys
            260                 265                 270

Ala Glu Cys Phe Met Ala Val Ser Cys Ala Thr Cys Gln Glu Ile Arg
        275                 280                 285

Arg Thr Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp Pro Ser
    290                 295                 300

Arg Trp Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe Ile Ser
305                 310                 315                 320

Thr Phe Ala Asn Pro Ser Ser Ser Gly Gln Cys Phe Lys Asp Glu Ser
                325                 330                 335

Lys Ser Ser Glu Asp Lys Asp Arg Ile Arg Asp Asp Gly Val Val Gln
            340                 345                 350

Glu Glu Gln Ser Arg Pro Glu Asp Ala Pro Ser Asp Leu Ser Ala Pro
        355                 360                 365

His Ser Ser Ala Arg Leu Asp Gly Thr Leu Glu Gly Cys Ala Ala Glu
    370                 375                 380

Thr Pro Gly Asp Ser Ala Gly Asp Met Arg Val Pro Ala Asp Ser Ser
385                 390                 395                 400

Leu Leu Cys Thr Leu Ser Ser Glu Ser Pro Gln Glu Ala Ala Ser Asp
                405                 410                 415

Ala Glu Ser Gly Lys Lys His Asp Asn Asn Ser Lys Ser Ala Ser Arg
            420                 425                 430

Pro Asp Val Gly Thr Ser Ser Pro Glu Pro Thr Pro Leu Asp Gln Glu
        435                 440                 445

Met Phe Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro Gln Ile Asp
    450                 455                 460

Leu Asp Lys Glu Leu Gln Gln Asp Pro Gly Glu Arg Pro Ser Pro Glu
465                 470                 475                 480

Arg Thr Gly Asp Ala Pro Ala Ala Pro Val Pro Gly Ser Pro Ser Ile
                485                 490                 495
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```
Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu Asn Leu Glu
            500                 505                 510

Pro His Met Asp Asp Pro Asp Val Lys Ala Gln Val Glu Val Leu Ser
        515                 520                 525

Ala Ala Leu Arg Ala Ser Thr Leu Asp Ala His Asp Glu Ala Gly Gly
    530                 535                 540

Ala Glu Gln Arg Ser Glu Leu Gln Asp Asp Ala Val Gly Ala Gly Gly
545                 550                 555                 560

Glu Leu Pro Asn Cys Ser Ile Ser Glu Asp Thr Ser Glu Pro Leu Val
                565                 570                 575

Ile Ala Ala Glu Glu Asn Met Glu Ala Thr Pro Asp Tyr Ile His Gly
            580                 585                 590

Gly Ala Asp Val Gly Pro Gly Gly Gly Gly Gly Phe Ser Pro Asp Glu
        595                 600                 605

Glu Arg Arg Pro Lys Val Gln Asp Val Val Pro Gln Ala Leu Leu Asp
    610                 615                 620

Gln Tyr Leu Ser Met Thr Asp Pro Ser Arg Ala Gln Thr Val Asp Thr
625                 630                 635                 640

Glu Ile Ala Lys His Cys Ala Tyr Ser Leu Pro Gly Val Ala Leu Thr
                645                 650                 655

Leu Gly Arg Gln Asn Trp His Cys Leu Arg Glu Thr Tyr Glu Thr Leu
            660                 665                 670

Ala Ser Asp Met Gln Trp Lys Val Arg Arg Thr Leu Ala Phe Ser Ile
        675                 680                 685

His Glu Leu Ala Val Ile Leu Gly Asp Gln Leu Thr Ala Ala Asp Leu
    690                 695                 700

Val Pro Ile Phe Asn Gly Phe Leu Lys Asp Leu Asp Glu Val Arg Ile
705                 710                 715                 720

Gly Val Leu Lys His Leu His Asp Phe Leu Lys Leu Leu His Ile Asp
                725                 730                 735

Lys Arg Arg Glu Tyr Leu Tyr Gln Leu Gln Glu Phe Leu Val Thr Asp
            740                 745                 750

Asn Ser Arg Asn Trp Arg Phe Arg Ala Glu Leu Ala Glu Gln Leu Ile
        755                 760                 765

Leu Leu Leu Glu Leu Tyr Ser Pro Arg Asp Val Tyr Asp Tyr Leu Arg
    770                 775                 780

Pro Ile Ala Leu Asn Leu Cys Ala Asp Lys Val Ser Ser Val Arg Trp
785                 790                 795                 800
```

```
Ile Ser Tyr Lys Leu Val Ser Glu Met Val Lys Lys Leu His Met Ala
                805                 810                 815

Thr Pro Pro Thr Phe Gly Val Glu Leu Ile Asn Glu Leu Val Glu Asn
            820                 825                 830

Phe Gly Arg Cys Pro Lys Trp Ser Gly Arg Gln Ala Phe Val Phe Val
        835                 840                 845

Cys Gln Thr Val Ile Glu Asp Asp Cys Leu Pro Met Asp Gln Phe Ala
    850                 855                 860

Val His Leu Met Pro His Leu Leu Thr Leu Ala Asn Asp Arg Val Pro
865                 870                 875                 880

Asn Val Arg Val Leu Leu Ala Lys Thr Leu Arg Gln Thr Leu Leu Glu
                885                 890                 895

Lys Glu Tyr Phe Leu Ala Ser Ala Ser Cys His Gln Glu Ala Val Glu
            900                 905                 910

Gln Thr Ile Met Ala Leu Gln Met Asp Arg Asp Ser Asp Val Lys Tyr
        915                 920                 925

Phe Ala Ser Ile His Pro Ser Ser Thr Lys Leu Ser Glu Asp Ala Met
    930                 935                 940

Ser Thr Ala Ser Ser Thr Tyr
945                 950
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<210> 13
<211> 1132
<212> DNA
<213> RATTUS NORVEGICUS

<400> 13

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tcagaagaca aagacaggat cagagacgat ggtgttgtac aagaagagca gagcaggcca    240
gaggacgcac cttcagacct cagtgcccct cactccagtg ccaggctgga cggcacactt    300
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